

CLAIMS

What is claimed is:

1. A chloride selective electrode membrane comprising a polymeric matrix wherein said matrix
2 comprises:
an epoxy resin; and
4 an amine agent selected from the group consisting of polyamides, amidoamines and mixtures
thereof,
6 wherein said agent is present in stoichiometric excess.
2. A chloride selective electrode membrane according to Claim 1, wherein said amine agent is a
2 polyamide.
3. A chloride selective electrode membrane according to Claim 2 wherein said polyamide is the reaction
2 product of an acid component and a polyalkylene polyamine component, said acid component
comprising unsaturated fatty acid dimer.
4. A chloride selective electrode membrane according to Claim 3 wherein said unsaturated fatty acid
2 dimer comprises polyunsaturated fatty acid dimer.
5. A chloride selective electrode membrane according to Claim 4 further comprising monounsaturated
2 fatty acid dimer.
- 6 A chloride selective electrode membrane according to Claim 4 wherein said polyunsaturated fatty
2 acid dimer is C18 polyunsaturated fatty acid dimer.
7. A chloride selective electrode membrane according to Claim 5 wherein said monounsaturated fatty

2 acid dimer is oleic acid dimer.

8. A chloride selective electrode membrane according to Claim 3 wherein said unsaturated fatty acid
2 dimer is dimerized fatty acid from an oil selected from tall oil, castor oil, linseed oil, soybean oil and
mixtures thereof.

9. A chloride selective electrode membrane according to claim 3 wherein said polyalkylene polyamine
2 component is selected from the group consisting of diethylene triamine, triethylene tetramine and
tetraethylene pentamine, and mixtures thereof.

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10. A chloride selective electrode membrane according to claim 1 wherein said polymer matrix further
2 comprises an adhesion promoter selected from the group consisting of clays, silicas, silicates and
mixtures thereof.

11. A chloride selective electrode membrane according to Claim 1, wherein said epoxy resin is a
2 polymer of bisphenol A and epichlorohydrin.

12. A chloride selective electrode membrane according to Claim 1 wherein the amount of said amine
2 agent is present in a stoichiometric excess of at least 150%.

13. A chloride selective electrode membrane according to Claim 1 wherein said amine agent is an
2 amidoamine.

14 A chloride selective electrode membrane according to Claim 13 wherein said amidoamine is the
2 reaction product of an acid component and an amine component, said acid component comprising
monomeric saturated and unsaturated fatty acids.

15. A chloride selective electrode membrane according to Claim 14 wherein said amine component is
2 selected from the group consisting of alkylene diamines and polyalkylene polyamines and mixtures
thereof.

16. A chloride selective electrode which comprises a chloride selective electrode membrane comprising
2 a polymeric matrix, wherein said matrix comprises:

an epoxy resin; and

4 a amine agent selected from the group consisting of polyamides, amidoamines and mixtures
thereof

6 wherein said amine agent is present in stoichiometric excess.

17. A system for measuring the chloride ion in a fluid, said system comprising:

2 a chloride selective electrode according to Claim 16

a reference electrode; and

4 means for measuring the electromotive force between said chloride selective electrode and said
reference electrode.

18. A sensor assembly for determining chloride ion in a test liquid, comprising:

2 an electrically insulated substrate having a surface with a reference electrode and a chloride selective
electrode formed thereon, wherein the chloride selective electrode comprises:

4 a chloride selective electrode membrane comprising a polymeric matrix wherein said matrix
comprises:

6 an epoxy resin; and
a amine agent selected from the group consisting of polyamide, amidoamines
8 and mixtures thereof, wherein said amine agent is present in stoichiometric excess;
means positioned on the surface of the substrate defining a reference flow channel and a
10 sensor flow channel;
said reference flow channel having means for passing reference liquids over the reference
12 electrode;
said sensor flow channel having means for passing test liquid over the sensor electrode; and
14 said reference and sensor flow channels defining a common outlet for removing liquids from the
assembly.

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19. A chloride selective electrode membrane comprising a polymeric matrix wherein said matrix
2 comprises:

an epoxy resin; and
4 an amine agent
wherein said agent is present in a stoichiometric excess of at least 150%.

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20. A method of applying the chloride selective membrane material of Claim 19 to an inert substrate,
2 said method comprising:

dispensing said material to onto said substrate; and
4 heating the substrate containing dispensed chloride selective material to obtain chloride
selective membrane.

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21. A method of applying the chloride selective membrane material of Claim 1 to an inert substrate,
2 said method comprising:

dispensing said material to onto said substrate; and
4 heating the substrate containing dispensed chloride selective material to obtain chloride
selective membrane.